

## IN THE CLAIMS

1           1. (Currently Amended) A metalworking fluid from heavy alkylate, comprising;

2           (a) residual fraction having C22 – C26 carbon atom of detergent class alkyl benzene in the  
3           concentration range of 40 to 85.68 weight percent of the metal working fluid, (b) at least one  
4           sulfonate/oleate class emulsifier in the range of 10 to 37.98 weight percent of the metalworking  
5           fluid, (c) synergistic combination of various additive components including, at least one  
6           triglyceride vegetable oil type lubricity booster component in the concentration range of 2-10  
7           weight percent of metal working fluid, a phenol/amine type antioxidant component in the  
8           concentration range of 0.005-0.05 weight percent, a phenolic fungicide component in the  
9           concentration range of 0.005-0.05 weight percent, an organic sulfide/phosphosulfide extreme  
10          pressure additive component in the concentration range of 0.005-0.05 weight percent, and a  
11          triazole/sulfonate type antirust component in the concentration range of 0.005-0.05 weight  
12          percent, (d) alcoholic co-surfactant component in the range of 1-10 weight percent of metal  
13          working fluid, (e) a sulfonate/sulfate coupling agent in the range of 0.5 to 1.0 weight percent of  
14          metal working fluid, (f) alkali earth metal salt component in the range of 0.5-1.0 weight percent  
15          of metal working fluid, that when converted into emulsion by stirring it in 60 to 90 weight  
16          percent of water ~~then~~, the emulsion is then useful as a general purpose soluble cutting oil ~~to act~~  
17          that acts as a coolant/engineering aid in metalworking, ~~having~~ has less toxicity than mineral  
18          [[oil]] based metalworking fluid oil and ~~adding~~ adds value to a waste product, i.e. heavy alkyl  
19          benzene.

1           2. (Previously Presented) A composition as claimed in claim 1; wherein the residual  
2           component of Alkyl Benzene is an oil component having heavy alkyl benzene of C22 – C26

3 carbon number, a heavy fraction by-product separated from detergent class alkyl benzene during  
4 manufacture.

1 3. (Original) A composition as claimed in claim 1, wherein the emulsifier is selected  
2 from the group consisting of heavy alkylate sodium sulfonates, sodium carboxylate, sodium  
3 oleate, Triethalonoamine oleate, Diethalonoamine oleate or Dodecyl Toluene sodium sulfonate  
4 or mixtures thereof.

1 4. (Original) A composition as claimed in claim 1, wherein the lubricity booster is a  
2 vegetable oil selected from the group consisting of karanja oil, neem oil, rice-bran oil, castor oil  
3 or mixtures thereof.

1 5. (Original) A composition as claimed in claim 1, wherein the antioxidant component is  
2 selected from the group consisting of an alkyl phenol, aromatic amine, substituted alkyl phenol  
3 selected from 2,6-ditertiary butyl phenol, 2,6-ditertiary p-cresol, Diphenylamine, Tertiary butyl  
4 phenol amino tetrazole and 2,6-dioctyl phenylene diamine.

1 6. (Original) A composition as claimed in claim 1, wherein the fungicide component is  
2 a phenol or phenolic acid selected from the group consisting of o-cresol, phenol, m-cresol and  
3 cresylic acid.

1 7. (Original) A composition as claimed in claim 1, wherein the extreme pressure  
2 additive component is an organic sulfide or phosphosulfurized metal salt selected from the  
3 group consisting of dibenzyl disulphide, sulfurized vegetable oil, phosphosulfurized decyl oleate  
4 molybdate and phosphothio pentadecyl phenol molybdate.

1           8. (Original) A composition as claimed in claim 1, wherein the anti-rust component is a  
2 triazole or sulfonate selected from the group consisting of 1H-benzotriazole, ditertiary butylated  
3 1H-Benzotriazole, calcium petroleum sulfonate and calcium heavy alkylate sulfonate.

1           9. (Previously Presented) A composition as claimed in claim 1, wherein the co-  
2 surfactant component is a alcohol selected from the group consisting of isopropanol, n-butanol,  
3 iso-butanol, iso-amyl alcohol, 2 ethyl hexanol, mono & poly glycol Viz., diethylene glycol and  
4 tri ethylene glycol.

1           10. (Original) A composition as claimed in claim 1, wherein the coupling agent  
2 component is a sulfonates (molecular weight less than 350) selected from the group consisting of  
3 ligno sulfonate, petroleum sulfonate, sodium dodecyl benzene sulfonate and sodium lauryl  
4 sulfate.

1           11. (Previously Presented) A composition as claimed in claim 1, wherein the alkali  
2 component is an alkali and alkaline earth metal salt selected from the group consisting of sodium  
3 carbonate, sodium hydrogen carbonate, calcium carbonate and calcium oxide.

1           12. (Previously Presented) A composition as claimed in claim 1, wherein the composition  
2 is suitable for use as metal working fluid and general emulsion as admixture with water in  
3 concentration range from 60 to 90 weight percent.

1           13. (Original) A process for preparing metalworking fluid as claimed in claim 1, said  
2 process comprises the steps of;  
3 a. removing of insoluble matter from the heavy alkylate followed by addition of emulsifier  
4 and vegetable oil to obtain the mixture;

5 b. homogenizing the resultant mixture at a temperature in the range of 30 to 100°C for about  
6 one hour with stirring;

7 c. adding the antioxidant, fungicide, extreme pressure additives, anti trust component,  
8 cosurfactant, coupling agent, alkali, followed by addition of water to make up the quantity about  
9 1kg, and

10 d. homogenizing the mixture for about 30 minutes, the pH of the solution was adjusted to 7-  
11 9 by addition of sodium carbonate and cooling the resultant metal working fluid at room  
12 temperature.

1 14. (Previously Presented) A process as claimed in claim 13, wherein the residual  
2 component of Alkyl Benzene is a oil component having heavy alkyl benzene of C22 – C26  
3 carbon number, a heavy fraction, by-product, separated from detergent class alkyl benzene  
4 during manufacture.

1 15. (Previously Presented) A process as claimed in claim 13, wherein the concentration  
2 of heavy alkyl benzene component is in the range of 40 to 85.68 weight percent of the  
3 metalworking fluid.

1 16. (Original) A process as claimed in claim 13, wherein the emulsifier is selected from  
2 the group consisting of heavy alkylate sodium sulfonates, sodium carboxylate, sodium oleate,  
3 Triethalonoamine oleate, Diethalonoamine oleate or Dodecyl Toluene sodium sulfonate or  
4 mixtures thereof.

1 17. (Previously Presented) A process as claimed in claim 13, wherein the concentration  
2 of emulsifier component is in the range of 10 to 37.98 weight percent of the metalworking fluid.

1           18. (Original) A process as claimed in claim 13, wherein the vegetable oil component  
2   for lubricity booster is selected from the group consisting of karanja oil, neem oil, rice-bran oil,  
3   castor oil or mixtures thereof.

1           19. (Original) A process as claimed in claim 13, wherein the concentration of vegetable  
2   oil component for lubricity boost is in the range of 2 to 10 weight percent of the metalworking  
3   fluid.

1           20. (Original) A process as claimed in claim 13, wherein the antioxidant component is  
2   selected from the group consisting of an alkyl phenol, aromatic amine, substituted alkyl phenol  
3   selected from 2,6-ditertiary butyl phenol, 2,6-ditertiary p-cresol, Diphenylamine, Tertiary butyl  
4   phenol amino tetrazole and 2,6-dioctyl phenylene diamine.

1           21. (Previously Presented) A process as claimed in claim 13, wherein the  
2   concentration of antioxidant component is in the range of 0.005 to 0.05 weight percent.

1           22. (Original) A process as claimed in claim 13, wherein the fungicide component is a  
2   phenol or phenolic acid selected from the group consisting of o-cresol, phenol, m-cresol and  
3   cresylic acid.

1           23. (Previously Presented) A process as claimed in claim 13, wherein the  
2   concentration of fungicide component is in the range of 0.005 to 0.05 weight percent.

1           24. (Original) A process as claimed in claim 13, wherein the extreme pressure additive  
2   component is an organic sulfide or phosphosulfurized metal salt selected from the group  
3   consisting of dibenzyl disulphide, sulfurized vegetable oil, phosphosulfurized decyl oleate  
4   molybdate and phosphothio pentadecyl phenol molybdate.

1           25. (Previously Presented) A process as claimed in claim 13, wherein the  
2 concentration of extreme pressure additive component is in the range of 0.005 to 0.05 weight  
3 percent.

1           26. (Original) A process as claimed in claim 13, wherein the anti-rust component is a  
2 triazole or sulfonate selected from the group consisting of 1H-benzotriazole, ditertiary butylated  
3 1H-Benzotriazole, calcium petroleum sulfonate and calcium heavy alkylate sulfonate.

1           27. (Previously Presented) A process as claimed in claim 13, wherein the concentration  
2 of ant-rust component is in the range of 0.005 to 0.05 weight percent.

1           28. (Original) A process as claimed in claim 13, wherein the co-surfactant component is  
2 a alcohol selected from the group consisting of isopropanol, n-butanol, iso-butanol, iso-amyl  
3 alcohol, 2 ethyl hexanol, mono & poly glycol such as di ethylene glycol and tri ethylene glycol.

1           29. (Original) A process as claimed in claim 13, wherein the concentration of co-  
2 surfactant component is in the range of 1 to 10 weight percent of the metalworking fluid.

1           30. (Previously Presented) A process as claimed in claim 13, wherein the coupling  
2 agent component is a sulfonate (molecular weight less than 350) selected from the group  
3 consisting of calcium ligno sulfonate, sodium petroleum sulfonate, sodium dodecyl benzene  
4 sulfonate and sodium lauryl sulfate.

1           31. (Previously Presented) A process as claimed in claim 13, wherein the  
2 concentration of coupling agent component is in the range of 0.5 to 1.0 weight percent of the  
3 metalworking fluid.

1           32. (Previously Presented) A process as claimed in claim 13, wherein the alkali  
2 component is an alkali and alkaline earth metal salt selected from the group consisting of sodium  
3 carbonate, sodium hydrogen carbonate, calcium carbonate, calcium oxide.

1           33. (Previously Presented) A process as claimed in claim 13, wherein the  
2 concentration of alkali component is in the range of 0.5 to 1.0 weight percent of the  
3 metalworking fluid.

1           34. (Previously Presented) A metalworking fluid from heavy alkylate, comprising;  
2 (a) residual fraction having C22 – C26 carbon atom of detergent class Alkyl Benzene in the  
3 concentration range of 50 to 90 weight percent of the metal working fluid, (b) an emulsifier  
4 selected from the group comprising heavy alkylate sodium sulfonates, sodium carboxylate,  
5 sodium oleate, Triethalonoamine oleate, Diethalonoamine oleate or Dodecyl Toluene sodium  
6 sulfonate or mixtures thereof, in the range of 10 to 37.98 w% of the metalworking fluid, (c) at  
7 least one lubricity booster component in the concentration range of 2-10 percent of metal  
8 working fluid, (d) an antioxidant component is in the concentration range of 50-500 ppm, (e) a  
9 fungicide component in the concentration range of 50-500 ppm, (f) an extreme pressure additive  
10 component in the concentration range of 50-500 ppm (g) an antirust component in the  
11 concentration range of 50-500 ppm, (h) a co-surfactant component in the range of 1-10 weight  
12 percent of metal working fluid, (i) a coupling agent in the range of 0.5 to 10 weight percent of  
13 metal working fluid, (j) alkali component in the range of 8-10 weight percent of metal working  
14 fluid.